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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/580,166	05/30/2000	Masami Ogata	SONY-T0602	2468

7590 07/25/2005

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EXAMINER
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GENCO, BRIAN C

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 07/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/580,166	<b>Applicant(s)</b> OGATA ET AL.	
	<b>Examiner</b> Brian C. Genco	<b>Art Unit</b> 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 3-6 and 10-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-9 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Applicant's amendment filed March 28, 2005 has been fully considered by the Examiner but is not deemed persuasive.

Examiner thanks Applicant for amending the drawings as requested. As such, the objection to the drawings is herein withdrawn.

Applicant's amendment to claim 1 has overcome the 35 U.S.C. 102(e) rejection presented previously, however, since only limitations of claim 2 were rolled into claim 1 the 35 U.S.C. 103(a) rejection of claim 2 will now be applied to claim 1.

Applicant argues that while Inou discloses calculating misregistration amounts between subsequent frames through a calculation of motion vectors, Inou does not disclose to capture "a plurality of images with different amounts of exposure" as recited in claim 1.

In response, Examiner notes that Inou was not relied upon to teach the limitation of capturing a plurality of images with different amounts of exposure. Rather, Hatano was relied on to teach that limitation. Inou was merely relied on to teach the details of how to generate and manipulate motion vectors of two subsequent images in order to correct for misregistration.

Applicant argues that Inou does not calculate misregistration amounts or anything between respective images.

In response, Examiner notes that it is abundantly clear from the disclosure of Inou that the motion vectors are generated between a current and previous image, or reference image. See the summary of the invention on column 3, lines 15-29.

Applicant argues that the Examiner has not pointed to any teaching in either reference that shows that one of ordinary skill in the art would have been motivated to use the calculations disclosed by Inou in Hatano.

In response, Examiner notes that explicit teaching in both references was pointed out in the rejection. In particular, Hatano explicitly discloses to correct for misregistration of images by generating motion vectors and correcting the misregistration based on those motion vectors as is disclosed on paragraphs 39-41 among other places in the disclosure. Inou discloses that it is particularly advantageous to utilize Inou's method of generating motion vectors for correcting an image in order to remove outliers that would make the amount of movement calculated to be detected incorrectly, reduce the amount of data to be processed, eliminate influences of a change in illumination intensity, and filter out the movement vectors recognized as ineffective vectors so as to improve the accuracy with which the movement vector of the image is determined as is explicitly disclosed on column 5, line 55 – column 6, line 30.

Applicant argues that the Examiner fails to point to any teaching in either reference that would motivate one of ordinary skill in the art to apply the calculations of Inou to a plurality of images since Inou only teaches using one image.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Hatano discloses generating motion vectors on a plurality of images so as to correct misregistration amounts between the images. Inou discloses that when you are generating motion vectors between two images to use a particular set of calculations detailed in the rejections bellow in order to remove outliers that would make the amount of movement calculated to be detected incorrectly, reduce the amount of data to be processed, eliminate influences of a change in illumination intensity, and filter out the movement vectors recognized as ineffective vectors so as to improve the accuracy with which the movement vector of the image. As such, in reviewing the combined teachings of the references as a whole, one skilled in the art at the time of the invention would have clearly recognized that a plurality of images would have motion vectors calculated between the images as discloses by Hatano wherein those motion vectors for each of the plurality of images would be advantageously calculated using Inou's method of generating motion vectors for correcting misregistration between images.

Applicant has not amended claim 8 similar to the amendment of claim 1. As such, the 35 U.S.C. 102(e) rejection of claim 8 still stands.

***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 8 are rejected under 35 U.S.C. 102(e) as being anticipated by (US PG-PUB 2003/0133035 to Hatano).

In regards to claim 8 Hatano discloses an imaging method for capturing a plurality of images with different amounts of exposure to compose said images into a single composite image (e.g., abstract), said image capturing apparatus comprising:

detecting amounts of misregistration of respective images except for a reference image, said reference image selected from said plurality of images, with respect to said reference image (e.g., the reference image is the image stored in image memory 204 as shown in Fig. 1 wherein the misregistration amount detecting means is element 207 of Fig. 1);

correcting the misregistration of the respective images except for said reference image with respect to said reference image based on said misregistration amounts (e.g., elements 202 and 205 of Fig. 1; paragraphs 0039, 0040, and 0041); and

composing said reference image and all of the respective misregistration corrected images except for said reference image (e.g., element 202 of Fig. 1; paragraphs 0040 and 0041).

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 2, 7, 9, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over (US PG-PUB 2003/0133035 to Hatano) in view of (USPN 5,905,527 to Inou et al.).

In regards to claim 1 Hatano discloses an image capturing apparatus for capturing a plurality of images with different amounts of exposure to compose said images into a single composite image (e.g., abstract), said image capturing apparatus comprising:

misregistration amount detecting means for detecting the amounts of misregistration of respective images except for a reference image, said reference image selected from said plurality of images, with respect to said reference image (e.g., the reference image is the image stored in image memory 204 as shown in Fig. 1 wherein the misregistration amount detecting means is element 207 of Fig. 1);

misregistration correcting means for correcting the misregistration of the respective images except for said reference image with respect to said reference image based on said misregistration amounts (e.g., elements 202 and 205 of Fig. 1; paragraphs 0039, 0040, and 0041); and

image composing means for composing said reference image and all of the respective misregistration corrected images except for said reference image (e.g., element 202 of Fig. 1; paragraphs 0040 and 0041).

Hatano does not disclose the specifics of how the motion vectors are calculated and as such does not disclose nor preclude that the misregistration is detected using feature points of images, wherein the misregistration amount detecting means comprises a feature point extracting means for extracting feature points from said reference image and the respective images except said reference image, respectively.

Inou discloses calculating a misregistration amount between two subsequent frames through a calculation of motion vectors similar to the teaching of Hatano. In particular Inou discloses:

feature point extracting means for extracting feature points from said reference image and the respective images except said reference image, respectively (e.g., element 201 of Fig. 6; column 5, line 55- column 6, line 31; Examiner notes that Inou discloses to utilize the band pass filter to remove outliers that would make the amount of movement calculated to be detected incorrectly and further that binary coding the image and passing it through the band pass filter also reduces the amount of data to be processed and eliminates influences of a change in illumination intensity);

Therefore it would have been obvious to one skilled in the art at the time of the invention to have utilized Inou's feature point extracting means for calculating the misregistration of two images in order to remove outliers that would make the amount of movement calculated to be detected incorrectly, reduce the amount of data to be processed, eliminate influences of a change in illumination intensity.

In regards to claim 2 Inou further discloses:

confidence level calculating means for calculating a confidence level for each of the images except for said reference image as said misregistration amount for each of a plurality of previously provided misregistration amount candidates, based on a positional relationship of the feature points in said reference image and the feature points in the respective images except for



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said reference image (e.g., elements 203 and 206 of Fig. 6; column 6, line 31 – column 7, line 19); and

maximum value detecting means for detecting said misregistration amount candidate which presents a maximum confidence level within said misregistration amount candidates as said misregistration amount in each of the images except for said reference image (e.g., column 8, lines 20-24; column 8, line 57 – column 9, line 4; Examiner notes that Inou discloses that by finding the maximum value and applying it to the conditional equation in column 8, line 63, the movement vectors recognized as ineffective vectors are filtered out thus improving the accuracy with which the movement vector of the image is determined).

Therefore it would have been obvious to one skilled in the art at the time of the invention to have utilized Inou's confidence level calculating means and maximum value detecting means in order to filter out the movement vectors recognized as ineffective vectors so as to improve the accuracy with which the movement vector of the image is determined.

In regards to claim 7, note that in Fig. 1 the luminance signal is the input to the image shake correcting circuit 113 and as such the luminance signal is the input to the band pass filter 201 of Fig. 6.

In regards to claim 9 and 14 see Examiners notes on the rejections above.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian C. Genco who can be reached by phone at 571-272-7364 or by fax at 571-273-7364. The examiner can normally be reached on Monday thru Friday 8:30am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached at 571-272-7593.

The fax phone number for the organization where this application or proceeding is assigned is currently (703) 872-9306. On July 15, 2005 the fax number will change to 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is 571-272-2600.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian C Genco  
Examiner  
Art Unit 2615

July 20, 2005



DAVID L. OMETZ  
PRIMARY EXAMINER